

Chrysler Diesel SCR Discussion Points

1. **Description/visuals of basic system architecture and philosophy/controls and how it differs from those of Cummins**
 - a. Hardware, sensors, locations
 - b. DEF quantity onboard
 - c. DEF refill interval
2. **Description of SCR Inducements (some overlap of subjects below is expected – tampering and quality both cover some of the same potential issues, for example)**
 - a. How is Chrysler monitoring **DEF quality**?
 - i. Describe sensing system, warning progressions/indicators, and inducement progressions (levels/time/mileage of functionally limited operation – speed/power/torque, etc.)
 1. Does Chrysler monitor the result of SCR (exhaust emissions monitor – for example, with a NOx sensor), monitor the function and status of parts of the system - or some/all of the above?
 - ii. What is monitored for quality?
 1. Fluid type/quality? (water or other DEF substitutes?)
 - a. DEF concentration measurement range?
 - b. What is the environmental monitoring range (temps, etc.)
 2. Functional quality – plugging or fouling of lines/fluid path?
 3. Hardware failure or functional degradation – pump, injector, etc.?
 4. Environmental – freezing, fouling, etc.?
 - a. Freeze/thaw strategy, including thaw times
 - b. How is Chrysler monitoring and managing **DEF Level**?
 - i. Describe sensing system, warning progressions/indicators, and inducement progressions (levels/time/mileage of functionally limited operation – speed/power/etc.)
 - c. How is Chrysler monitoring/preventing/mitigating **Tampering and Repeated Tampering and DEF Defeat Devices**?
 - i. Regarding tampering, describe sensing system, warning progressions/indicators, and inducement progressions (levels/time/mileage of functionally limited operation – speed/power/etc.)
 1. Tampering detection for DEF fluid substitution and fluid delivery (lines, injector, tank)
 2. Tampering detection for electrical, sensors, jumper connector devices, etc.
 - ii. Tampering prevention through hardware design:
 1. Do Chrysler designs place connectors in difficult to reach locations to discourage disconnects, jumpers, or installation of devices that could prevent fault codes, etc.?
 2. Do Chrysler designs incorporate hardware/connector features that discourage tampering?
 - iii. When repeated tampering is detected, does the system accelerate inducement progression, or otherwise prevent defeating of the inducement strategy?
 - iv. Are there any fuel level related triggers or interactions with inducement progression, inducement clearing, or tampering detection?
3. **Description of procedures for clearing SCR inducements**
 - a. Are there differences in service procedure and inducement elimination depending on the trigger source of the inducement (fluid level versus tampering, for example?)
 - b. Is there any software retention of tampering faults history, inducement history, SCR/DEF faults recorded and saved that can't be cleared by a service tool?
 - c. In inducement modes, are any other systems impacted that may affect constituent or GHG emissions?
4. **Description of any triggers and functions/strategies not covered by the above topics and how they are used**
5. **Preliminary AECD table, if Chrysler wants to get to that level of detail**
6. **Any initial CARB feedback/concerns?**